

# Future-Ready Core Course of Study Mathematics Graduation Requirements Effective 2012 - 2013

(Policy GCS-N-004 from <http://sbepolicy.dpi.state.nc.us/>)

## Changes at a Glance:

1. The mathematics courses in the College and Career Pathways have new course codes as indicated below. These courses, using the course codes indicated, are also available for students **not** in a College and Career Pathway.

Course Number	Course Title	NCWISE Course Code
MAT 161	College Algebra	2028
MAT 151	Statistics I	2035
MAT 171	Pre-calculus Algebra	2044
MAT 172	Pre-calculus Trigonometry	2042
MAT 271	Calculus I	2043

2. Based on Career and College Promise Program Guidelines, only students in a Cooperative Innovative High School may access the following courses and/or associated labs:  
MAT 140, MAT 141, MAT 142, MAT 145, MAT 151, MAT 155  
Additional Information on the Career and College Promise is available at <http://www.ncpublicschools.org/ccpromise/>
3. MAT 171 and MAT 172 each receive 1 math credit. The iterations of "K" and "L" have been removed. Either "I" (Community College, Honors) or "T" (Community College Honors, ONLINE) should be used as the 5<sup>th</sup> character.
4. MAT 165 **and** MAT 165A (Finite Mathematics) has been added per UNCGA memorandum as a Community College course accepted by the UNC General Administration as the "4<sup>th</sup> Math".
5. Per the Comprehensive Articulation Agreement, the following courses have been added as courses that are not accepted by the UNC General Administration for admission to UNC institutions but may be suitable for meeting the "4<sup>th</sup> Math" for high school graduation
  - MAT 273 Calculus III
  - MAT 280 Linear Algebra
  - MAT 285 Differential Equations
6. Previously the labs for the Community College mathematics courses not accepted by the UNC General Administration for admission to UNC institutions were required. However, based on information from the Community Colleges, the math lab may or may not be needed to meet their requirements. Please check with the Community College of interest.  
NOTE: Labs taught in conjunction with courses accepted by the UNC General Administration **are** required.
7. Labs for MAT 271, MAT 272, MAT 280 and MAT 285 have been added under course code 2499I and 2499T.
8. The names of some CTE courses have been changed to reflect changes in their standards.
9. The only MAT courses that count as math credits are those specifically listed in the 3<sup>rd</sup> column of the chart. All other MAT courses count as math electives.
10. In the substitution pathway, the name of Applied Mathematics I and II has been changed to Alternate Mathematics I and II. These courses may also be used by students affected by N.C.G.S. §115C-81(b).
11. Completion of any pair of CTE courses may be substituted as application based mathematics courses and will yield 2 math credits.

# Future-Ready Core Course of Study Mathematics Graduation Requirements

## Effective 2012 - 2013

(Policy GCS-N-004 from <http://sbepolicy.dpi.state.nc.us/>)

### Four units in mathematics for every student:

Effective with the Freshman Class of 2009-2010, Four Mathematics units are required for graduation: [Algebra I, Geometry, Algebra II] OR [Integrated Mathematics I, II, III] OR [Local Option CC Math I, II, III] plus a fourth mathematics course to be aligned with the student's after-high-school plans. Also of further importance, the Future Ready core requirements are still in place with the implementation of the new CCSSM.

*NOTE: Course codes are in parentheses following course title.*

<b>Core Mathematics Courses <i>Plus a fourth course to be aligned with the student's after-high-school plans</i></b>		
Algebra I (2023)	Local Option CC Math I (2032)	Integrated Mathematics I (2051)
Geometry (2030)	Local Option CC Math II (2033)	Integrated Mathematics II (2052)
Algebra II (2024)	Local Option CC Math III (2034)	Integrated Mathematics III (2053)

<b>4<sup>th</sup> Courses that are accepted by the UNC General Administration for admission to UNC institutions</b>	
<b>Courses from the NC Standard Course of Study for Mathematics</b>	<b>Community College Mathematics Courses accepted by the UNC General Administration as the "4<sup>th</sup> Math"</b>
Advanced Functions and Modeling (2025) Discrete Mathematics (2050) Pre-Calculus (2070)  Integrated Mathematics IV (2054) AP Statistics (2066) AP Calculus (AB) (2076) AP Calculus (BC) (2077)	MAT 155 (2063) <b>and</b> MAT 155A (2499) (Statistical Analysis)* MAT 165 (2063) <b>and</b> MAT 165A (2499) (Finite Mathematics)* MAT 171 (2044), MAT 171A (2499) (Pre-Calculus Algebra) <b>AND</b> MAT 172 (2042), MAT 172A (2499) (Pre-Calculus Trigonometry)* MAT 175 (2070) <b>and</b> MAT 175A (2499) (Pre-Calculus)* MAT 252 (2063) <b>and</b> MAT 252A (Statistics II)* MAT 271 (2043) <b>and</b> MAT 271A (2499) (Calculus I)* MAT 272 (2063) <b>and</b> MAT 272A (2499) (Calculus II)*
<i>Note: Equivalent IB math courses are acceptable for admissions to UNC institutions.</i>	*Must be taken in concert with the associated lab course

<b>Courses that are not accepted by the UNC General Administration for admission to UNC institutions but may be suitable for meeting the "4<sup>th</sup> Math" for high school graduation</b>		
<b>Mathematics Electives</b>	<b>CTE<sup>4</sup> Courses that are acceptable substitutions for the "4<sup>th</sup> Math"</b>	<b>Community College Mathematics Courses</b>
Analytical Geometry (2031) Trigonometry (2041) Probability & Statistics (2065) Special Topics in Math (2063)*	Accounting II (6312) Drafting II – Engineering (7972) AP Computer Science (2508) Principles of Technology I (8011) Electronics I (7631) PLTW Introduction to Engineering Design (8020)  PLTW Principles of Engineering (8021) PLTW Digital Electronics (8022) PLTW Computer Integrated Manufacturing (8030) PLTW Civil Engineering and Architecture (8031) PLTW Biotechnical (8032) PLTW Aerospace Engineering (8033) PLTW Engineering Design & Development (8040)	MAT 140* (2063) (Survey of Mathematics) MAT 141* (2063) (Mathematical Concepts I) MAT 142* (2063) (Mathematical Concepts II) MAT 145* (2063) (Analytical Math) MAT 151* (2035) (Statistics I) MAT 161* (2028) (College Algebra)  MAT 162* (2063) (College Trigonometry) MAT 167* (2063) (Discrete Mathematics) MAT 210* (2063) (Logic) MAT 263* (2063) (Brief Calculus) MAT 273* (2063) (Calculus III) MAT 280* (2063) (Linear Algebra) MAT 285* (2063) (Differential Equations)
<i>*2063 courses must be above the third level of mathematics. See column 3 for 2063 courses that count as math credits.</i>		<i>*An additional math lab may be included to meet Community College credit requirements</i>

## Substitution for Future Ready Core Mathematics Requirements

In the rare instance a principal exempts a student from the Future-Ready Core mathematics sequence, except as limited by N.C.G.S. §115C-81(b)<sup>1</sup>, the student will be required to pass [Algebra I and Geometry] OR [Integrated Mathematics I and Integrated Mathematics II] OR [Local Option CC Math I and Local Option CC Math II] plus [Alternate Mathematics I and II] OR [2 application-based mathematics courses as determined by the LEA].

### 4 years of mathematics—Substitution by Principal

Core Mathematics Courses <i>Plus two application based mathematics courses</i>		
Algebra I (2023) Geometry (2030)	Local Option CC Math I (2032) Local Option CC Math II (2033)	Integrated Mathematics I (2051) Integrated Mathematics II (2052)
<i>Two application based mathematics courses or any approved mathematics electives as determined by LEA</i>		<i>Pairs of CTE<sup>3</sup> courses that may substitute as application based mathematics courses. Completion of any pair will yield 2 math credits.</i>
Introductory Mathematics (2020) Foundations of Algebra (2018) Foundations of Geometry (2029) Foundations of Advanced Algebra (2019) Alternate Mathematics I <sup>2</sup> (2026) Alternate Mathematics II <sup>2</sup> (2027)		<b>OR</b> <ul style="list-style-type: none"> <li>• Accounting I (6311) and II (6312)</li> <li>• Drafting I (7921) and II (7972 or 7962)</li> <li>• Biotechnology and Agriscience Research I (6871) and II (6872)</li> <li>• Computer Programming I (6421) and II (6422)</li> <li>• Principles of Business and Finance (8721) and Entrepreneurship I (8716)</li> <li>• Personal Finance (8726) and Entrepreneurship I (8716)</li> <li>• Apparel I (7035) and II (7036)</li> <li>• Interior Design I (7151) and II (7152)</li> <li>• Principles of Technology I (8011) and II (8012)</li> <li>• PLTW Intro to Engineering Design (8020) and PLTW Principles of Engineering (8021)</li> <li>• Carpentry I (7721) and II (7722)</li> <li>• Electrical Trades I (7741) and II (7742)</li> <li>• Electronics I (7631) and II (7632)</li> <li>• Metals Manufacturing Technology I (7641) and II (7642)</li> <li>• Foods I (7045) and Food II – Enterprise (7046)</li> <li>• Culinary Arts &amp; Hospitality I (7121) and II (7122)</li> </ul>

<sup>1</sup> **Note about students affected by N.C.G.S. §115C-81(b)—**

4 units of mathematics—possible sequence of courses

Students could also take Alternate Math I (2026) and Alternate Mathematics II (2027)

- Fundamental Mathematics I (2008)
- Fundamental Mathematics II (2009)
- Foundations of Algebra (2018)
- Introductory Mathematics (2020)

<sup>2</sup> **Goals and Objectives for Alternate Mathematics I and II may be found at** [www.maccss.ncdpi.wikispaces.net](http://www.maccss.ncdpi.wikispaces.net)

<sup>3</sup> **Notes about CTE courses used to meet mathematics requirements—**

1. If the student uses CTE courses to meet mathematics requirements, then the courses also must be counted for credit in meeting the completion of a career cluster credit.
2. It is important for a student to take both levels in a course sequence for their career development. It would be inappropriate to take two Level I CTE courses for the two alternative math credits instead of Levels I and II in a course sequence. This sequenced instruction also will reinforce the mathematics learning.
3. The teacher must hold the appropriate CTE license and will not be required to obtain a mathematics license.